Journal of

Computational Physics

VOLUME 34, 1980

Academic Press
New York and London
A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1980 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (Operations Staff, P.O. Box 765, Schenectady, New York 12301) for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1980 articles are the same as those shown for current articles.

Printed by the St. Catherine Press, Ltd., Bruges, Belgium

CONTENTS OF VOLUME 34

Number 1, January 1980

Review

D. B. Haidvogel, A. R. Robinson, and E. E. Schulman. The Accuracy, Efficiency, and Stability of Three Numerical Models with Application to Open Ocean Problems. 1

W. R. Briley and H. McDonald. On the Structure and Use of Linearized Block ADI and Related Schemes. 54

R. C. Y. Chin and R. L. Braun. Numerical Solutions of Chemically Reacting Flows in Porous Media. 74

John C. Strikwerda. Initial Boundary Value Problems for the Method of Lines. 94

Notes

Bertil Gustafsson. Comment on "On Boundary Conditions for Hyperbolic Difference Schemes." 108

Philip S. Brown, Jr. More Efficient Numerical Solution of Diurnal Kinetics Problems. 111

Curtis D. Mobley and Robert J. Stewart. On the Numerical Generation of Boundary-Fitted Orthogonal Curvilinear Coordinate Systems. 124

Announcement. 136

List of Forthcoming Articles. 137

Number 2, February 1980

R. Krieg and G. Hailfinger. Transient, Three-Dimensional Potential Flow Problems and Dynamic Response of the Surrounding Structures. Part 1: Description of the Fluid Dynamics by a Singularity Method (Computer Code SING). 139

R. Krieg, B. Goller, and G. Hailfinger. Transient, Three-Dimensional Potential Flow Problems and Dynamic Response of the Surrounding Structures. Part II: Simultaneous Coupling between Fluid and Structural Dynamics (Computer Code SING–S). 164

D. C. Rapaport. The Event Scheduling Problem in Molecular Dynamic Simulation. 184

Kanji Abe and Osamu Inoue. Fourier Expansion Solution of the Korteweg–de Vries Equation. 202

J. A. Halbleib and J. E. Morel. Adjoint Monte Carlo Electron Transport in the Continuous-Slowing-Down Approximation. 211

D. I. PULLIN. Direct Simulation Methods for Compressible Inviscid Ideal-Gas Flow. 231
M. J. P. CULLEN AND K. W. MORTON. Analysis of Evolutionary Error in Finite Element and Other Methods. 245
K. AUDENAERDE, G. A. EMMERT, AND M. GORDINIER. SPUDNUT: A Transport Code for Neutral Atoms in Plasmas. 268

LIST OF FORTHCOMING ARTICLES. 285

NUMBER 3, MARCH 1, 1980

WILLIAM J. SILLIMAN AND L. E. SCRIVEN. Separating Flow Near a Static Contact Line: Slip at a Wall and Shape of a Free Surface. 287
CLIVE TEMPERTON. On the FACR(l) Algorithm for the Discrete Poisson Equation. 314
H. J. WILLENBERG. Multigroup Representation of Fusion Products Orbits in a Plasma Column. 330
ACHI BRANDT, J. E. DENDY, JR., AND HANS RUPPEL. The Multigrid Method for Semi-implicit Hydrodynamics Codes. 348
EROL VAROĞLU AND W. D. LIAM FINN. Finite Elements Incorporating Characteristics for One-Dimensional Diffusion–Convection Equation. 371
C. W. HIRT AND B. D. NICHOLS. Adding Limited Compressibility to Incompressible Hydrocodes. 390
URI ASCHER. Solving Boundary-Value Problems with a Spline-Collocation Code. 401
MICHAEL N. BARBER. Optimal Variational Approximations to Renormalization Groups. II. Determination of Optimal Parameters. 414

ANNOUNCEMENT 435

LIST OF FORTHCOMING ARTICLES. 437

AUTHOR INDEX FOR VOLUME 34. 439